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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/596,444

06/14/2006

Marc Joseph Rita Op De Beeck

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS

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EXAMINER

LIU, LI

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/596,444	Applicant(s) OP DE BEECK, MARC JOSEPH RITA	
	Examiner LI LIU	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-10 are pending.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claim 10 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 10 defines a computer program product embodying functional descriptive material. However, the claim does not define a computer-readable medium or computer-readable memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" - Guidelines Annex IV). The scope of the presently claimed invention encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. The examiner suggests amending the claim(s) to embody the program on "computer- readable medium" or equivalent; assuming the specification does NOT define the

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computer readable medium as a "signal", "carrier wave", or "transmission medium" which are deemed non-statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

5. Claims 1-5 and 7 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claims 1-5 and 7 are drawn to apparatus embodying functional descriptive material. Normally, the claims would be statutory. However, the claims do not positively recite structure, but rather recites "units", that could be implemented as software program according to the specification (page 9). Pure computer software is non-statutory subject matter.

Because the full scope of each of the claims as properly read in light of the disclosure appears to encompass non-statutory subject matter, the claim as a whole is non-statutory. Any amendment to the claims should be commensurate with its corresponding disclosure.

6. Claim 9 is rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. The Federal Circuit (*In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008)), relying upon Supreme Court precedent (*Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876)), has indicated that a statutory "process" under 35 U.S.C. 101 must (1) be tied to a particular machine or apparatus, or (2) transform a particular article to a different state or thing. This

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is referred to as the "machine or transformation test", whereby the recitation of a particular machine or transformation of an article must impose meaningful limits on the claim's scope to impart patent-eligibility (See *Benson*, 409 U.S. at 71-72), and the involvement of the machine or transformation in the claimed process must not merely be insignificant extra-solution activity (See *Flook*, 437 U.S. at 590"). While the instant claim recites a series of steps or acts to be performed, the claim neither transforms an article nor is positively tied to a particular machine that accomplishes the claimed method steps, and therefore do not qualify as a statutory process.

Claim 9 recites a process that fails to specify structure that is significant to the basic inventive concept. That is, the "particular machine" tasked with segmenting and scaling the image is not recited. Hence, claim 9 fails the "machine" prong of the "machine-or- transformation" test.

The transformation prong of the Bilski test for patent eligible subject matter stems from *In re Abele*, 684 F.2d 902 (CCPA 1982), particularly, the discussion surrounding Abele's claims 5 and 6. The combination of Abele's claims 5 and 6, is presently considered an example of a valid transformation, because:

1) data being transformed (i.e. the "particular article") represents "real world data" (e.g. Abele uses X-ray attenuation data);

2) the "particular article" is transformed into a different state or thing by a non-trivial step of the method (e.g. the steps recited in claim 5 of Abele.); and

3) the transformed data is depicted as an external representation of a physical object (e.g. the transformed data is displayed).

Claim 9 at least fails to depict data being transformed represents "real world data), hence also fails the "transformation" prong of the "machine-or-transformation" test.

The rejections of claim 9 under 35 U.S.C. 101 are based on current examination guidance of the office.

For a more detailed explanation of this or other Office policy, Applicants may refer to the Office of Patent Legal Administration (OPLA):

(571) 272-7701 - General patent examination legal and policy guidance.

Any amendment to the claims should be commensurate with its corresponding disclosure.

Claim Rejections - 35 USC § 112, second paragraph

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-5 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

--- Claim 1 recites, *inter alia*, "an image conversion unit ... comprising ...". It is not clear from the remaining claim language what structural elements of the image conversion unit have been configured to perform the claimed segmentation and scaling. Thus claim 1 is rendered indefinite for failing to particularly point out, with a reasonable degree of clarity, the structure of the image processing device that has been configured to perform the remaining

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functional claim elements. "[A]pparatus claims cover what a device *is*, not what a device *does*." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

Dependant claims 2-5 and 7 do not cure the aforementioned indefiniteness deficiencies of claim 1 and so are similarly rejected for the reasons indicated re claim 1 above.

Dependent Claim 6 is not rejected under 35 USC § 112 second paragraph because claim 6 recites input means for accepting user input.

-- Claim 7 recites the limitation "...standard aspect ratios being used in television". It is indefinite because it is not clear what aspect ratios are "standard" aspect ratios. Aspect ratios used in television depend on many factors and they change over time.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

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Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fleming et al. (hereafter referred to as "Fleming", US 7158158), in view of Gokturk et al. (hereafter referred to as "Gokturk", US 7203356).

Regarding claim 1, Fleming discloses an image conversion unit (**Fleming, Abstract, Fig. 7**) for converting an input image with an input aspect ratio into an output image with an output aspect ratio being different from the input aspect ratio (**Fleming, Fig. 9**), the image conversion unit comprising:

segmentation means for segmentation of the input image (**Fleming, Fig. 11, step 835, divide each frame into a plurality of regions**), resulting in a first group of connected pixels forming a first input segment which represents a first object (**Fleming, Fig. 3, circle 353 or strip 355**) and a second group of connected pixels forming a second input segment which represents a second object (**Fleming, Fig. 3, circle 351 in the center strip of image**); and

scaling means (**Fleming, Fig. 11, steps 837 and 839**) for scaling the first input segment in a first direction with a location dependent scaling factor (**Fleming, Fig. 3, image scaled according to nonlinear functions along the**

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horizontal direction: circle 353 or strip 355 are stretched horizontally) into a first output segment (**Fleming, Fig. 3, 363 or strip 365**) of the output image and for scaling the second input segment (**Fleming, Fig. 3, circle 351 in the center of image**) in the first direction with a constant scaling factor (**Fleming, Fig. 3, original aspect ratio of the video image is preserved near the center region**) into a second output segment (**Fleming, Fig. 3, circle 361**) of the output image.

Fleming further discloses giving the user control over the location and the amount of distortion. However, Fleming does not expressly disclose that the segmentation of the input image is based on pixel values of the input image.

Gokturk discloses an object-based image processing method comprising segmentation and tracking of objects in a scene (**Gokturk, abstract, Fig. 5c shows head and body detection using a histogram-based method**).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply Gokturk's segmentation method to the device of Fleming in order to locate the object/region of interest such as human face, in order to obtain better quality video by maintaining the original aspect ratio in areas of interest.

Regarding claim 2, the combination of Fleming and Gokturk discloses an image conversion unit as claimed in claim 1, further comprising object tracking means for tracking the second object (**Gokturk, Fig. 2, step 230 for head detection and tracking, and col. 7&8, section E. Head detection and tracking**) by establishing that a further input segment in a further input image

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which belongs to a sequence of video images to which the input image also belongs, corresponds to the second input segment (**follow the head's location and shape in the previous frame**), and the scaling means being arranged to scale the further input segment into a further output segment with the constant scaling factor (**see analysis of claim 1, apply Fleming's scaling method and maintain original aspect ratio in head and body area**).

Regarding claim 3, the combination of Fleming and Gokturk discloses an image conversion unit as claimed in claim 1, further comprising depth ordering means being arranged to establish a depth order between the first input segment (**Gokturk, Fig. 1, background**) and the second input segment (**Gokturk, Fig. 2, object segmentation to separate foreground object and background**).

Regarding claim 4, the combination of Fleming and Gokturk discloses an image conversion unit as claimed in claim 3, whereby the depth ordering means are based on one of a set of depth cues comprising: occlusion, relative image sharpness, color (**Gokturk, Fig. 5c shows head and body detection using a histogram-based method**), size of segments.

Regarding claim 5, the combination of Fleming and Gokturk discloses an image conversion unit as claimed in claim 1, comprising merging means for merging the first output segment (**Gokturk, Fig. 1, background**) and the second output segment (**Gokturk, Fig. 1, person in the foreground**) resulting in

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overwriting a part of the pixel values of the first output segment with pixel values of the second output segment (**Fleming, Fig. 4 and supporting disclosure from col. 5, line 65 to col. 6, line 15, the aspect ratio at the center of interest is preserved, while the display is compressed when approaching the border areas (background), resulting in the size of the area of interest being relatively larger and background smaller**).

Regarding claim 6, the combination of Fleming and Gokturk discloses an image conversion unit as claimed in claim 1, comprising input means for accepting user input and scaling determining means for determining the constant scaling factor on basis of the user input (**Fleming, abstract, Fig. 11, step 831**).

Regarding claim 7, the combination of Fleming and Gokturk discloses an image conversion unit as claimed in claim 1, whereby the input aspect ratio and the output aspect ratio are substantially equal to values of elements of the set of standard aspect ratios being used in television (**Fleming, Figs. 7&8, television as display device**).

Regarding claim 8, the combination of Fleming and Gokturk discloses an image display apparatus comprising:

a receiver (**Fleming, Fig. 7, unit 701**) for receiving an input image;

an image conversion unit as claimed in claim 1 (see analysis of claim 1);

and

a display device (**Fleming, Fig. 7, unit 709**) for displaying the output image.

Regarding method claim 9 and program claim 10, the limitations of the claims are rejected for the same reasons as set forth in the rejection of claim 1 above.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Osberger et al., "Automatic identification of perceptually important regions in an image", Proceedings of International Conference on Pattern Recognition, 1998. page(s): 701-704 vol.1

Takebuchi; Hideaki et al. (US 5461431 A): display apparatus for television for displaying an image of different size on a whole display screen.

Suzuki; Ryoji et al. (US 7212218 B2): video display apparatus and video display method.

Ouchi; Satoru (US 7137890 B2): modifying game image from wide to normal screen using moving or eye direction of character.

Luo; Jiebo et al. (US 6282317 B1): method for automatic determination of main subjects in photographic images.

Takechi, Aya et al. (US 20020057369 A1): image display apparatus.

Kozai, Kazuhiro (US 20030117526 A1): image processing apparatus and television receiver using the same.

Ramage; William W. (US 4790028 A): method and apparatus for generating variably scaled displays.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LI LIU whose telephone number is (571)270-5363. The examiner can normally be reached on Monday-Thursday, 7:00AM-4:30PM, ALT. Fridays, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed, can be reached on (571)272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Samir A. Ahmed/

Supervisory Patent Examiner, Art Unit 2624